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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,340	03/17/2004	B. Raghava Reddy	HES 2003-IP-011492U1	5199
28857	7590	09/29/2005	EXAMINER	
CRAIG W. RODDY HALLIBURTON ENERGY SERVICES P.O. BOX 1431 DUNCAN, OK 73536-0440			FULLER, BRYAN A	
			ART UNIT	PAPER NUMBER
			3676	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

1.2

<b>Office Action Summary</b>	Application No. 10/802,340	Applicant(s) REDDY ET AL.	
	Examiner Bryan A. Fuller	Art Unit 3676	

**Period for Reply**  
 -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-126 is/are pending in the application.
- 4a) Of the above claim(s) 47-126 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-126 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ <u>3/17/04</u> <u>7/6/04</u> <u>10/12/04</u> | 6) <input type="checkbox"/> Other: _____  |

10/12/04 11/18/04  
 8/1/05 4/4/05 ✓

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**DETAILED ACTION**

***Election/Restrictions***

**DETAILED ACTION**

1. Restriction to one of the following inventions is required under 35 U.S.C.

121:

- I. Claims 1 - 46, drawn to a method of cementing in a subterranean formation, classified in class 166, subclass 285.
- II. Claims 47 - 83, drawn to method of making a cement composition having enhanced mechanical properties, classified in class 106, subclass 608.
- III. Claims 84 - 126, drawn to a cement composition, classified in class 106, subclass 614.

2. Inventions II & III and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product can be used for building or construction material, building blocks, coating (spray on coating on sides of buildings), walkways, roads (can be concrete/cement), tile, swimming pools (another subterranean zone) concrete repair of driveway, garages, etc.

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3. Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions are unrelated because one group II is directed to changing the properties of a cement composition. Group III is directed to a specific cement composition.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II or III, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Craig Roddy on 9/12/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1 - 46. Affirmation of this election must be made by applicant in replying to this Office action. Claims 47 – 126 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 – 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Dillenbeck, III (5,613,558).

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With respect to claim 1: Dillenbeck teaches in column 1, lines 7 – 12 and in column 3, line 34 – column 4, line 63 a method of cementing in a subterranean formation comprising: providing a cement composition comprising a hydraulic cement and a degradable material; placing the cement composition into a subterranean formation; allowing the cement composition to set therein; and allowing the degradable material to degrade.

With respect to claim 2: Dillenbeck teaches in column 3, lines 53 – 56 a method wherein the cement composition further comprises water, and wherein the water is present in the cement composition in an amount sufficient to form a pumpable slurry.

With respect to claims 3 and 4: Dillenbeck teaches in column 4, lines 3 – 7 a method wherein the water is present in the cement composition in an amount in the range of from about 30% to about 75% by weight of the cement.

With respect to claim 5: Dillenbeck teaches in column 3, lines 41 – 52 a method wherein the hydraulic cement comprises Portland cements, pozzolanic cements, gypsum cements, high alumina content cements, phosphate cements, silica cements, or high alkalinity cements.

With respect to claims 6, 8, and 9: Dillenbeck teaches in column 4, lines 38 – 63 a method wherein the degradable material can be set up to degrade at any point and time in the setting process.

With respect to claims 7 and 15: Dillenbeck teaches in column 4, lines 20 – 37 a method wherein the degradable material or the cement composition can include a fluid loss additive.

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With respect to claim 19: Dillenbeck teaches in column 4, lines 20 – 37 a method wherein the degradable material is present in the cement composition in an amount in the range of from about 1% to about 25% by weight of cement.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Hutchins et al (5,203,834).

With respect to claim 10: Dillenbeck teaches the features as previously claimed except for wherein the degradable material, upon degradation, forms at least one gas, salt or combination thereof. Hutchins et al teaches in column 12, lines 53 – 60 a method wherein the degradable material, upon degradation, forms at least one gas, salt or combination thereof. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using a degradable material, which, upon degradation, forms at least one gas, salt or combination thereof in view of Hutchins et al. The motivation for this combination is that this allows for the cement composition to be more permeable to gases.

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10. Claims 11, 14, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Moradi-Araghi et al (6,387,986).

With respect to claims 11, 14, and 46: Dillenbeck teaches the features as previously claimed except for wherein specific degradable materials are used. Moradi-Araghi et al teaches in column 12, lines 8 - 17 a method wherein polyanhydride, polyorthoester, or poly(lactic acid) can be used as the degradable materials. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using these specific degradable materials in view of Moradi-Araghi et al. The motivation for this combination is that these materials can degrade by various mechanisms.

11. Claims 12 – 13, 16, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Palmer et al (6,599,863).

With respect to claims 12 – 13, and 20: Dillenbeck teaches the features as previously claimed except for wherein specific degradable materials are used in a specific amount. Palmer et al teaches in column 3, line 66 – column 5, line 10 a method wherein polyamide or nylon can be used as the degradable materials in an amount in the range of from about 5% to about 15% by weight of the composition. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using these specific degradable materials in specific amounts in view of Palmer et al. The motivation for this combination is that these materials do not have to be pure to be used. They can possess various additives.

With respect to claim 16: Dillenbeck teaches the features as previously claimed except for wherein the degradable material comprises particles in the form of a thin film, a flake, a substantially spherical particle, a bead, a fiber, or a combination thereof. Palmer et al teaches in column 2, line 48 – column 3, line 5 a method wherein the degradable material comprises particles in the form of a thin film, a flake, a substantially spherical particle, a bead, a fiber, or a combination thereof. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using a degradable material that comprises particles in the form of a thin film, a flake, a substantially spherical particle, a bead, a fiber, or a combination thereof in view of Palmer et al. The motivation for this combination is that these materials do not have to be pure to be used. They can possess various additives.

12. Claims 17 – 18, and 21 – 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Chatterji et al (US 2001/0004936).

With respect to claims 17 and 18: Dillenbeck teaches the features as previously claimed except for wherein the degradable material is present in the cement composition in an amount sufficient to leave voids in the cement composition that enhance the elasticity, resiliency, and/or ductility of the cement composition. Chatterji et al teaches in paragraph [0015] a method wherein the degradable material is present in the cement composition in an amount sufficient to leave voids in the cement composition that enhance the elasticity, resiliency, and/or ductility of the cement composition. Therefore, it would have been



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obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using a cement composition where the degradable material is present in an amount sufficient to leave voids in the cement composition that enhance the elasticity, resiliency, and/or ductility of the cement composition in view of Chatterji et al. The motivation for this combination is that it creates a cement composition, which hardens into a highly resilient solid mass having high compressive, tensile and bond strengths.

With respect to claims 21 and 22: Dillenbeck teaches the features as previously claimed except for wherein a polymer emulsion is used in a specific amount. Chatterji et al teaches in paragraphs [0015] and [0023] a method wherein a polymer emulsion is used in a specific amount. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using a polymer emulsion in a specific amount in view of Chatterji et al. The motivation for this combination is that it creates a cement composition, which hardens into a highly resilient solid mass having high compressive, tensile and bond strengths.

With respect to claims 23 - 27: Dillenbeck teaches the features as previously claimed except for wherein the polymer emulsion comprises a specific polar monomer in a specific amount and a specific elasticity-enhancing monomer in specific amounts. Chatterji et al teaches in paragraphs [0018] – [0021] a method wherein the polymer emulsion comprises a specific polar monomer in a specific amount and a specific elasticity-enhancing monomer in specific amounts. Therefore, it would have been obvious to one of ordinary skill in the art at the

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time the invention was made to have modified Dillenbeck's invention by using a specific polar monomer and a specific elasticity-enhancing monomer, in specific amounts, to make the polymer emulsion in view of Chatterji et al. The motivation for this combination is that it creates a cement composition, which hardens into a highly resilient solid mass having high compressive, tensile and bond strengths.

With respect to claims 28 - 30: Dillenbeck teaches the features as previously claimed except for wherein a specific stiffness-enhancing monomer is added in a specific amount. Chatterji et al teaches in paragraphs [0019] – [0021] a method wherein a specific stiffness-enhancing monomer is added in a specific amount. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by adding to the polymer emulsion a specific stiffness-enhancing monomer in a specific amount in view of Chatterji et al. The motivation for this combination is that it creates a cement composition, which hardens into a highly resilient solid mass having high compressive, tensile and bond strengths.

With respect to claim 31: Dillenbeck teaches the features as previously claimed except for wherein the polymer emulsion comprises a styrene butadiene latex. Chatterji et al teaches in paragraph [0019] a method wherein the polymer emulsion comprises a styrene butadiene latex. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using a polymer emulsion that comprises a styrene butadiene latex in view of Chatterji et al. The motivation for this

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combination is that it creates a cement composition, which hardens into a highly resilient solid mass having high compressive, tensile and bond strengths.

With respect to claims 32 - 34: Dillenbeck teaches the features as previously claimed except for wherein the polymer emulsion further comprises a specific surfactant in a specific amount. Chatterji et al teaches in paragraphs [0015], [0025], and [0034] a method wherein the polymer emulsion further comprises a specific surfactant in a specific amount. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by using a specific surfactant in the polymer emulsion in a specific amount in view of Chatterji et al. The motivation for this combination is that it creates a cement composition, which hardens into a highly resilient solid mass having high compressive, tensile and bond strengths.

13. Claims 35 – 41, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Reddy et al (US 2003/0221832).

With respect to claims 35 - 37: Dillenbeck teaches the features as previously claimed except for wherein the cement composition further comprises nitrogen gas in a specific amount. Reddy et al teaches in paragraph [0010] a method wherein the cement composition further comprises nitrogen gas in a specific amount. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by having a cement composition that further comprises a specific amount of nitrogen gas in view of Reddy et al. The motivation for this combination is that it prevents trapped fluid pressure increases, reduces fluid

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hydrostatic pressure, removes drill cuttings, displaces drilling fluids in an eccentric annulus, controls fracture pressure and controls fluid loss.

With respect to claims 38 – 41 and 43: Dillenbeck teaches the features as previously claimed except for wherein the cement composition further comprises a specific gas-generating additive in a specific amount capable of generating in situ. Reddy et al teaches in paragraphs [0012], [0022], and [0050] a method wherein the cement composition further comprises a specific gas-generating additive in a specific amount capable of generating in situ. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by having a cement composition that further comprises a specific gas-generating additive in a specific amount capable of generating in situ in view of Reddy et al. The motivation for this combination is that it prevents trapped fluid pressure increases, reduces fluid hydrostatic pressure, removes drill cuttings, displaces drilling fluids in an eccentric annulus, controls fracture pressure and controls fluid loss.

14. Claims 38 – 39, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Heathman (5,966,693).

With respect to claims 38, 39, and 42: Dillenbeck teaches the features as previously claimed except for wherein the cement composition further comprises a specific gas-generating additive in a specific amount. Heathman teaches in column 3, lines 3 - 15 a method wherein the cement composition further comprises a specific gas-generating additive in a specific amount. Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified Dillenbeck's invention by having a cement composition that further comprises a specific gas-generating additive in a specific amount in view of Heathman. The motivation for this combination is that it allows the cement composition to be used in well bores that are deep, have a high bottom hole temperature, and penetrates weak formations having high potential for gas flow into the well bore.

15. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Brothers et al (6,904,971).

With respect to claim 44: Dillenbeck teaches the features as previously claimed except for wherein the subterranean formation comprises a multilateral well. Brothers et al teaches in column 2, lines 19 – 29 a method wherein the subterranean formation comprises a multilateral well. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by having a subterranean formation that further comprises a multilateral well in view of Brothers et al. The motivation for this combination is that it is common to use multilateral well wellbores because multilateral wellbores allows for a more proficient production of a subterranean formation.

16. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dillenbeck, III in view of Simpson et al (6,578,630).

With respect to claim 45: Dillenbeck teaches the features as previously claimed except for wherein the subterranean formation comprises a wellbore that comprises an expandable tubular. Simpson et al teaches in column 4, lines 40 -

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64 a method wherein the subterranean formation comprises a wellbore that comprises an expandable tubular. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Dillenbeck's invention by having a subterranean formation that further comprises a wellbore that comprises an expandable tubular in view of Simpson et al. The motivation for this combination is that it is common to use expandable tubulars because it allows for more options for production of oil and gas from the subterranean formations.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan A. Fuller whose telephone number is (571) 272-8119. The examiner can normally be reached on M - Th 7:30 - 5:00 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian E. Glessner can be reached on (571) 272-6843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian E. Glessner  
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